



User Manual

1. GENERAL

1.1 Document Info

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2. INTRODUCTION

2.1 About this document

This document constitutes the User Manual for PLANET Web User Interface.

2.2 List of Abbreviations

Abbreviation	Definition
CSV	Coma Separated Value (data format)
DME	Distance Measuring Equipment
GFS	Global Forecast System
KML	Keyhole Markup Language
LAN	Local Area Network
METAR	METeorological Aerodrome Report
MPE	Multisensor Precipitation Estimate
NDB	Non Directional Beacon
NOTAM	Notice To AirMen
PIREP	Pilot REPort
PLNT	PLANET ident of ground server
SIA	Service de l'Information Aéronautique
TAF	Terminal Aerodrome Forecast
URL	Uniform Resource Locator
VOR	VHF Omnidirectional Range
WS	Web Socket
WUI	Web User Interface

3. SYSTEM OVERVIEW

PLANET enables exchange of data in real time between the on-ground and an in-flight segments. It relies on satellite and cellular networks for ubiquitous connectivity.

This service is available to users during flight and on the ground.

Figure 1 gives an overview of the system. PLANET system main components are:

- The On-board segment: composed of a communication server and a set of end devices (such as tablet) to run PLANET web application on a web browser.
- The Ground Segment: Composed by both ground server (which provides an optimal air to ground routing) and ground users (represented as flight operators in the figure).
- Satellite and optional terrestrial (cellular) communications network providing connectivity between Embedded System and Ground Segment in all phases of flight.
- External information servers (Météo France, SIA, etc..).

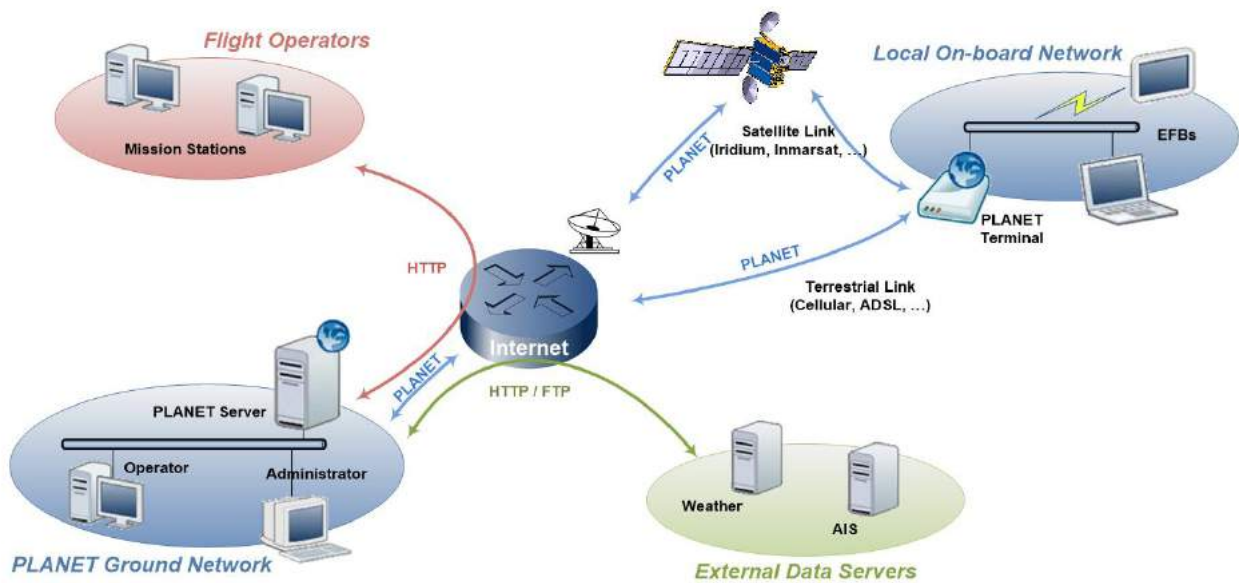


Figure 1 : PLANET system overview

4. WEB APPLICATION

Access to PLANET application is made through a web browser. The same configuration is available on the ground and on-board.

The supported browser for accessing the portal are Mozilla Firefox and Google Chrome.

4.1 Accessing PLANET application from Ground device

Pre-requisite: The device must be connected to the Internet and have a compatible web browser installed (Firefox, Chrome).

To access the ground application, go on the following URL:

<https://planet.atmosphere.aero>

Access to the portal is password protected:



Figure 2 : PLANET logging interface

Note: User Privileges

There are three levels of privileges for a user:

- Active: allows interactions between the user and the application (example: sending chat messages, geomarkers, etc)
- Passive: does not allow interactions between the user and the application (example: chat and geomarkers in view mode only)
- Admin: an active user that have access to User Admin page (4.8 User Admin)

4.2 Accessing PLANET application from onboard device

Pre-requisite: The device must be connected to the same LAN as PLANET onboard server.

From a web browser, go on the following URL:

http://PLANET_SERVER_IP

PLANET_SERVER_IP has to be replaced with the IP address of PLANET server in the onboard LAN. This parameter, as well as the credentials to login, are reminded in the MEMO file.

4.3 Home Page

Once authenticated, the ground user is redirected to the Portal home page, as depicted in **Figure 3**:



Figure 3 : Portal home page

Each sub section of the portal are described further in this document.

4.4 Live Monitoring

The live monitoring page is accessible by all ground user levels. The live monitoring page is depicted in Figure 4.





Figure 4 : Web portal - Live Monitoring page

The Live Monitoring page provides access to the missions to which the user is allowed to follow. The mission concept allows to follow a fleet, to share information between all the aircraft involved

as well as the ground users, including their track, messages and geomarkers. Accessible missions is configured for each user upon request to ATMOSPHERE team.

For each mission, there are two features available:

- “View on Map”  which provides access to the moving map and all the main features of PLANET application.
- “View graphs”  that redirects to a page where some parameters are plotted on charts (by default: Temperature, Pressure Altitude and Ground Speed, and possibly other parameters from onboard instruments).

Note on “View graphs” section:

This feature will be soon deprecated and added to the main application view, accessible from “View on Map”.

Below each mission buttons, a list of aircraft belonging to that mission is displayed. For each aircraft, a LED-like indicator shows the current status (**RED**: disconnected, **GREEN**: connected).

Note:

Only the missions with aircraft are displayed on that page.

4.4.1 Map View

The “Map View” page is the main interface of PLANET application. It allows the user to monitor all the aircraft of the selected mission, with display of track and health monitoring parameters, to exchange chat messages, geomarkers and files of any type, to query and display weather and aeronautical information, geo-localized on a world map and to monitor instrument data (mission specific).

When accessing the “Map View” page, the user will be directed to the Navigation and Weather view of the page, as depicted in Figure 5:

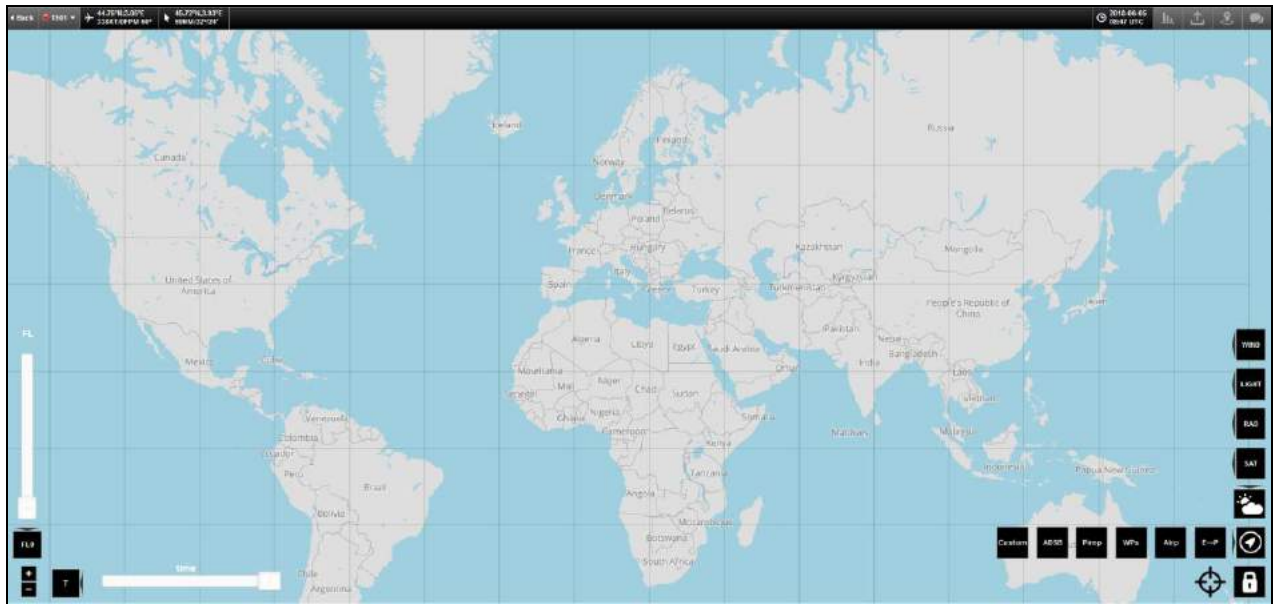


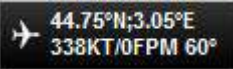
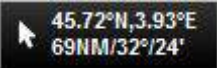
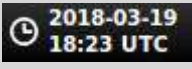












Figure 5 : Fleet monitoring page - Navigation & Weather view

Here is an overview of the main features available from the “Map View” page:

Button	Feature
	Back button (4.4.2)
	Aircraft selector (4.4.3)
	Aircraft position on map (4.4.4)
	Mouse pointer position on map (4.4.5)
	Clock (4.4.6)
	Telemetry (4.4.7)
	File transfer (4.4.8)
	Geomarkers (4.4.9)
	Chat (4.4.9)
	Zoom button (4.4.2)

	Weather Layers (4.4.12)
	Navigation Layers (4.4.13)
	Lock Screen button (4.4.14)
	Time Slider (4.4.15)
	Flight Level Slider (4.4.16)
	Aircraft Position Lock (4.4.17)

4.4.2 Back button

This button allows to go back to PLANET Mission Selection Page.

4.4.3 Aircraft selector


This dropdown menu allows to select the active aircraft to be tracked. Active aircraft is then taken as reference for several other features such as ETA calculation, Aircraft Position Lock, Telemetry ...

The ONLINE/OFFLINE status of the aircraft is reminded with a dot before the aircraft name. Red is OFFLINE, green is ONLINE.


Clicking on the aircraft selector button will make a drop down menu appear:



Figure 6 : Aircraft selector dropdown menu

 allows to show/hide the aircraft track. By default, if the aircraft is OFFLINE, the track will be hidden. If the aircraft is ONLINE, the track will be displayed.

 allows to show/hide the distance circles around the aircraft.

Track:  forever allows to set the track length. “forever” means the last 12 hours track before the last aircraft position received.

4.4.4 Aircraft position on map

This field shows the active aircraft position on the map (latitude, longitude).

4.4.5 Mouse pointer on map

This field shows the mouse pointer position when hovering the map (latitude, longitude, ETA for active aircraft and radial distance).

4.4.6 Clock box

This box show the current UTC date and hour.

4.4.7 Telemetry

4.4.7.1 Instrument data acquisition

Instrument data acquisition in PLANET is specified in a dedicated technical note which is available in

Aircraft

4.4.7.2

4.4.7.3 **Add Aircraft** allows to add a new aircraft.

Figure 48: User Admin - Add new aircraft

➤ **AIRCRAFT LIST** allows to access the client aircraft list.

Ident	Mission
TATD	TEST
TE01	TEST

Figure 49: User Admin - Aircraft list

Note: inactive aircraft are greyed out and crossed out.

Select an aircraft to modify it. You can change its mission and change its active status.

An inactive aircraft is not displayed in the mission and no new position can be set.

Figure 50: User Admin - Aircraft update

ANNEX 1 - Instrument Data Acquisition Interface Description.

4.4.7.4 Telemetry display

This button allows to open the Telemetry side application (**Figure 7**).



Figure 7 : Telemetry side application

Note:

- The telemetry sidebox is displayed for the active aircraft selected in the topbar.
- The “Downlink: STOP/START” button is only available onboard. It allows to STOP/START downlink of instrument data to the ground. By default, downlink is active.

4.4.7.4.1 Telemetry side box display

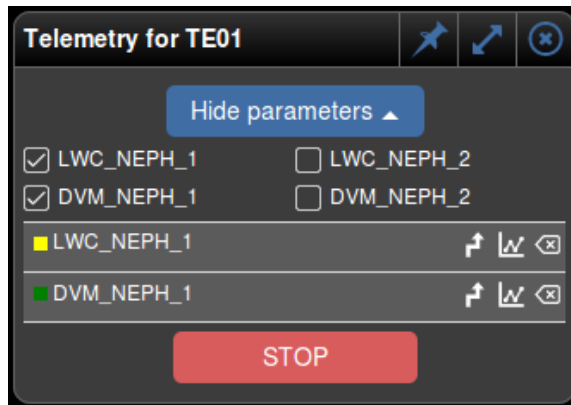



Figure 8 : Telemetry side application display

Any parameter configured in the dropdown menu can then be displayed by ticking the corresponding box.

: allows to color the aircraft track given the parameter values. The color white for the lowest values of the parameter and has the color defined before the parameter name for the highest values of the parameter.

: allows to open the bottom box with parameter chart display (see next section for details)

: close the corresponding parameter telemetry line

The configuration of the parameter list in the dropdown menu is done by ATMOSPHERE team upon request.

4.4.7.4.2 Charts display

4.4.7.4.2.1 Bottom box display

From the telemetry sidebox feature, for each parameter, a chart can be displayed in the bottom of the page as shown on the following figure.

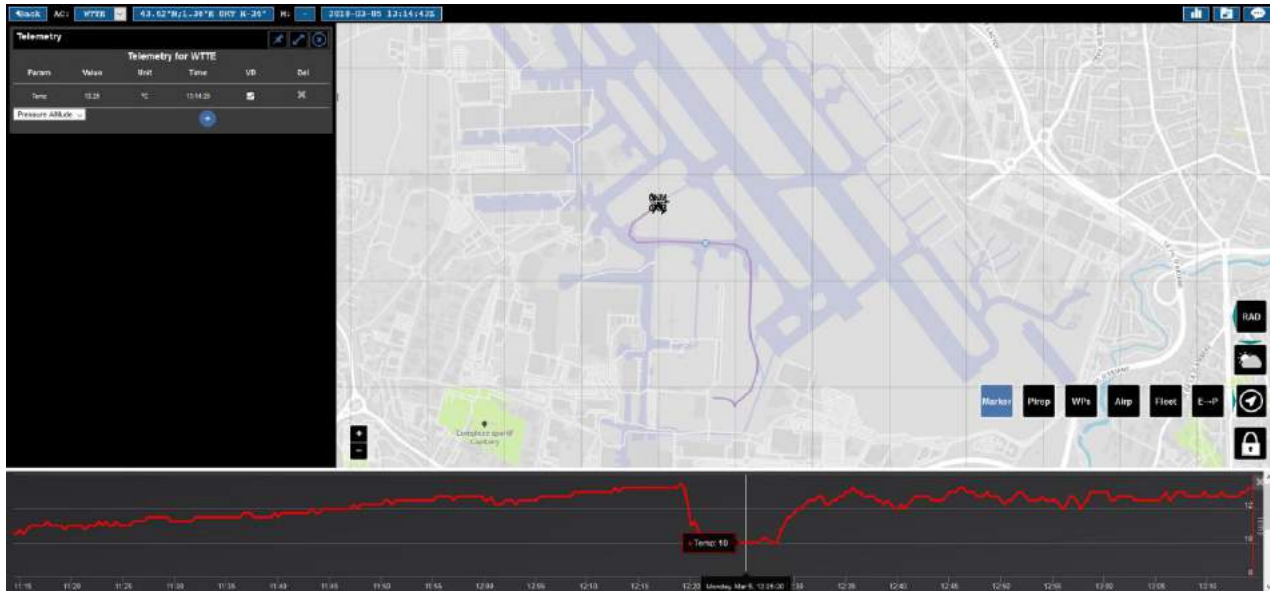



Figure 9 : Telemetry: charts in bottom box

: Click on this icon to enable the bottom display.

When sliding inside the bottom box, it is also possible to reconfigure the time span for the displayed parameter as shown on the following picture:



Several time durations can be selected (5min to all) but the time span can also be resized manually.



Note: When hovering the chart with the mouse, a pointer  appears on the map to show the position of the parameter at this time.



Figure 10 : Telemetry: pointer on map on chart hover

4.4.7.4.2.2 Full screen display

It is also possible to display live charts. To access the charts page, extend the Telemetry application by clicking on .

After clicking on the aircraft ident button, it is then possible to add chart display of the same list of parameters than in the side box telemetry application (**Figure 11**).



Figure 11 : Adding new chart

Several charts can be created. Several parameters can be displayed on the same chart (**Figure 12**).



Figure 12 : Telemetry charts display

4.4.8 File transfer

This button allows to open/close the file transfer side application.

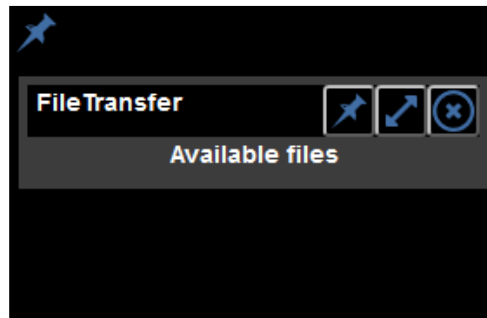


Figure 13 : File Transfer side application

In the file transfer side application, there is only a short status on exchanged files, as show on the following figure:

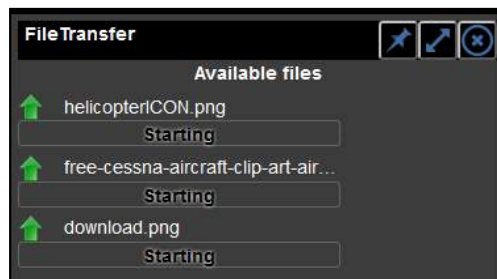



Figure 14 : File Transfer side application information

For sending files or having a complete status on transferred files, extend the application by clicking on .

The following figure provides an example of display for the file transfer full screen application.



Figure 15 : File Transfer full screen application

The left panel provides an overview on the status of all the files transferred or being transferred.

The right panel allows to start a new file transfer. The user must chose a file locally and the select the receiver for the file (either one aircraft of the mission or the ground instance, called 'PLNT').

To go back to the "Map View" page, click on the "Go back to map" button.

Note:

With Iridium satcom connectivity, use the file transfer feature carefully due to low bandwidth availability. Sent file size should not exceed 50Kbytes.

4.4.9 Geomarkers



allows to open the Geomarker side application (Figure 16) as well as show the geomarkers on the map.

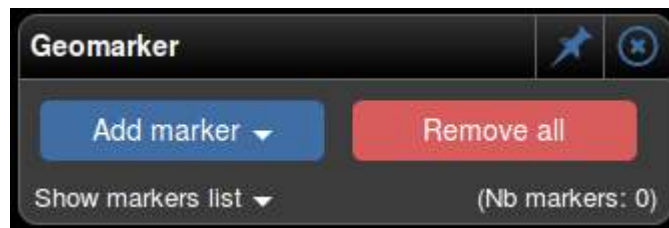


Figure 16: Geomarker side application

There are two ways to produce geomarkers: either draw them directly on the map or import them from a file where they have been beforehand defined.

4.4.9.1.1 Drawing a geoamarker

Geomarker functionality enables users (both onboard and on the ground) to draw geometrical shapes on the map. This shapes can be used for instance to designate areas of interest for the mission.

The geomarkers are shared with all the users in the same mission (i.e. both ground and board users). Four shapes are available (polygon, circle, multi-line and point):



Figure 17: Geomarker shape selection

Also, on aircraft instances, another section is available.



Figure 18: Drop maker at current location (onboard only)

It allows to drop a geomarker point over the aircraft current position.

Add marker ▾

Clicking on **Add marker ▾** will open the geomarker creation menu.

Then selecting any of the available shape will trigger geomarker creation. The geomarker has then to be drawn directly on the map. A double click will stop the geomarker edition.

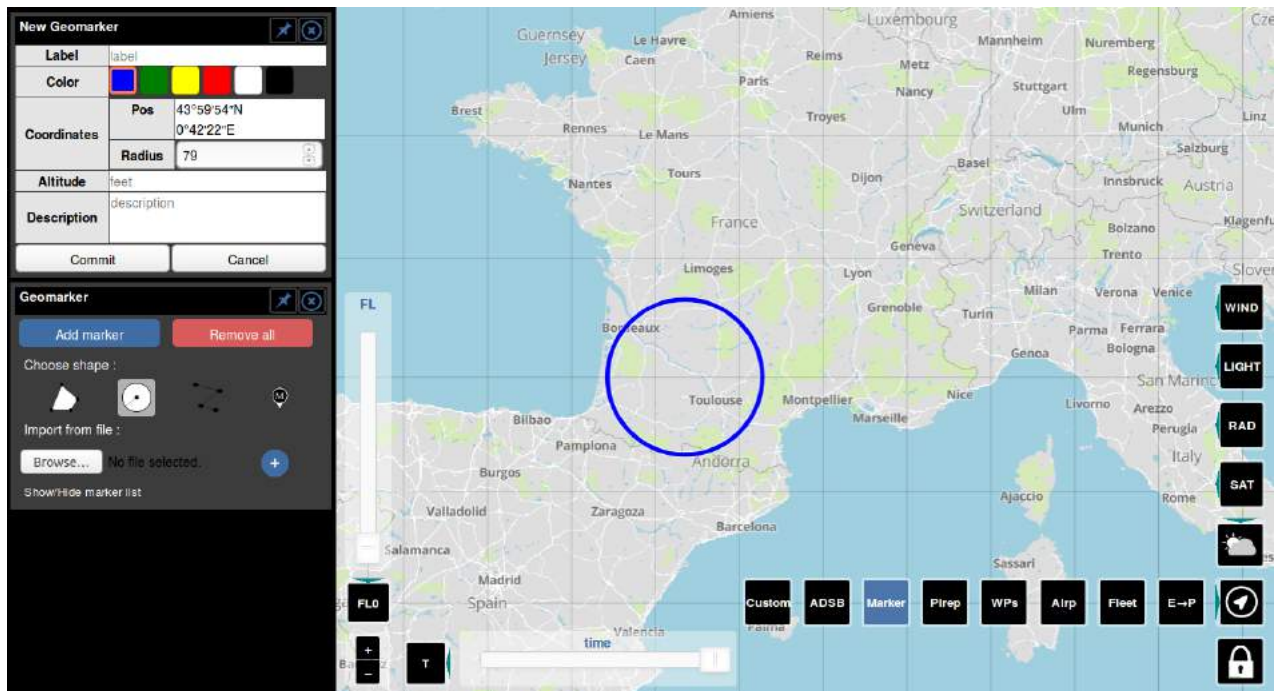


Figure 19: Geomarker edition

Once the shape is finished, the customization menu pops up in the side panel (**Erreur ! Source du renvoi introuvable.**). User can then modify several parameters: the color, the label, the altitude and the description. Note that the label will be displayed on the map, near the shape.

Once created, a geomarker can be modified by clicking on it. The edition panel will then pop up in the side panel. Users can update information in the panel. The shape can also be modified directly on the map.

Commit

Validate the modifications and send them to the other users.

Cancel

Cancel the modifications.

Delete Delete the GM.

Note:

- A geomarker can only be deleted/modified by its owner. Owner does not mean a specific user but the PLANET instance from which the geomarker was created (e.g. ground or onboard).
- Circle radius cannot be modified. Delete and create a new one with the new radius.
- A geomarker is displayed for 12 hours after its creation.

Remove all

The **Remove all** button allows to remove all the geomarkers created from the user instance (e.g. PLNT for ground users).

Show markers list

By clicking on **Show markers list**, the geomarker list can be displayed/hidden.

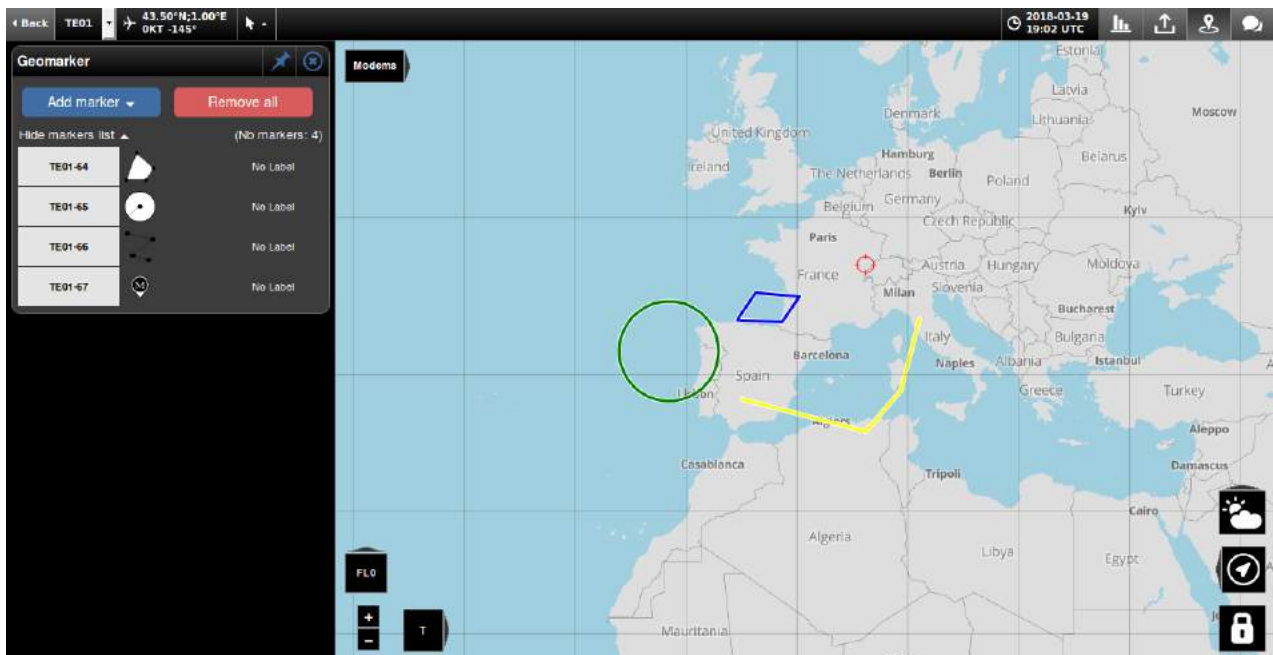


Figure 20: Geomarker list in side panel

(Nb markers: 1): show the number of geomarkers currently displayed on the map.

4.4.9.1.2 Importing geoamarkers from a file

Geomarkers can also be imported from a file using the following menu in the side panel application:

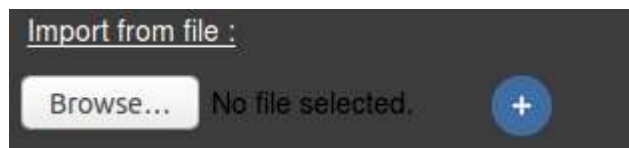


Figure 21: Geomarker – import from file

A geomarker file has to follow a specific format which is defined in ANNEX 2 - Geomarker File Format Description.

If the file selected is not well formatted, an error will be raised to the user to inform him about the issue.

The “Delete ALL” button allows to remove all the geomarkers appearing on the map (even the ones creating with the drawing feature).

4.4.10 Chat

This button allows to open/close the chat side application.

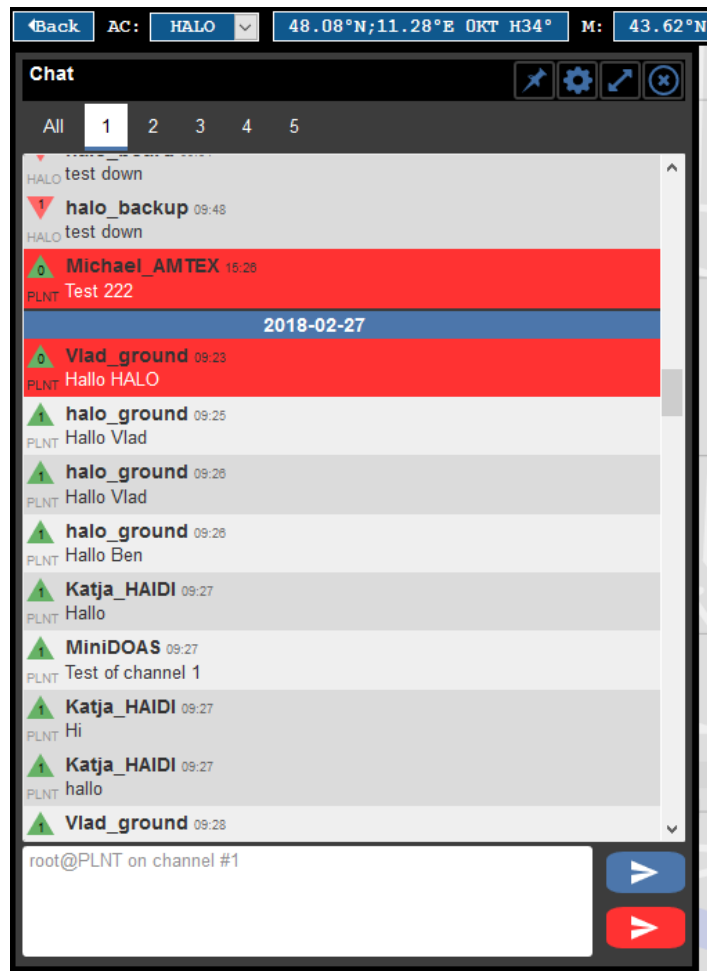







Figure 22 : Chat side application

Area	Feature
<div style="display: flex; gap: 10px;"> All 1 2 3 4 5 </div>	Channel selector

	Message from peer (with channel number)
	Message from my instance (with channel number)
	Broadcast message
	Standard send
	Broadcast send



allows to open chat settings.

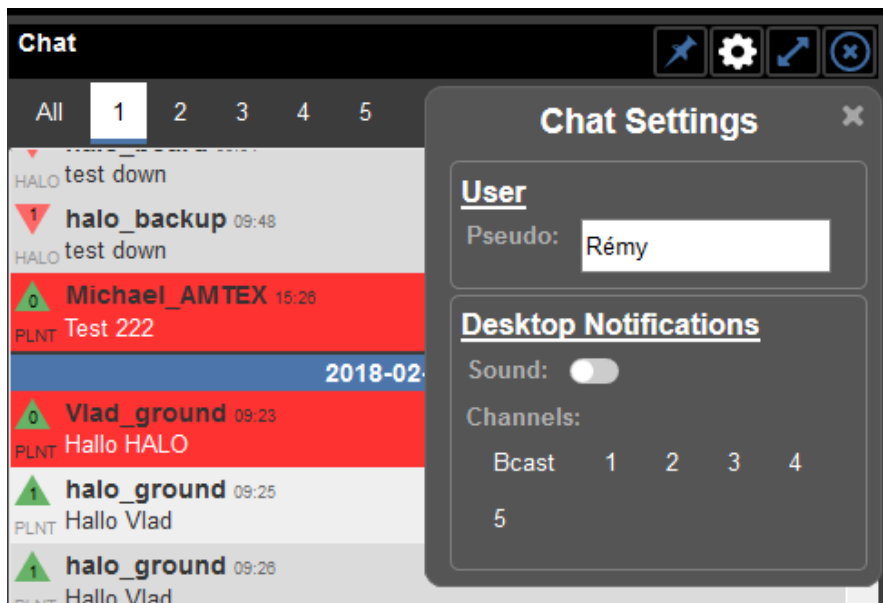


Figure 23 : Chat settings

From the chat settings menu, the pseudo can be modified. Also, **Desktop Notifications** can be enabled for chat messages.

For **Desktop Notifications**: the user must authorize desktop notifications when asked by the browser. Then desktop notifications can be enabled for selected channels and as well as sound when receiving new notification.

Note:

- Even if enabled, Desktop Notifications won't popup if you have focus on planet web page.
- Desktop notifications are not available for mobile device.



Figure 24 : Desktop Notification in Windows


The Chat can also be displayed in full page mode.  allows to extend the chat in full screen mode.



Figure 25 : Chat full screen application

Once on the chat view, active users can enter a pseudo and type messages in the input boxes at the bottom of the page (when in the message input box, simply strike the Enter key to send the message).

There are 6 channels of communication on the chat:

- In the **All** channel, messages sent on all of the 6 channels are displayed, preceded by the number of the channel the message was sent on. Standard and Broadcast sent are not available when in the **All** channel.
- The channels **1 to 5** can be used as private channels. Messages written on a specific channel will be visible only in this channel and in the **All** channel.

Once the message is typed, the user can either hit the **Standard send** button (or the Enter key) to send the message to the current active channel, or hit the **Broadcast send** button, to send the messages to all 6 channels (broadcasted messages appear in red).

If a new message arrives in a channel other than the currently active one, the associated channel button will be highlighted.



New messages are indicated to the user on the chat icon.

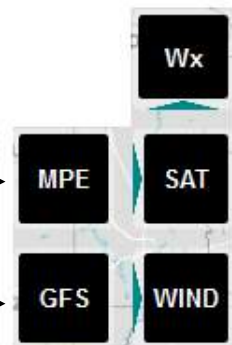
4.4.11 Zoom button

This button allows to zoom in or out on the map.

4.4.12 Weather Layers

This button extends the weather menu to access all the weather products available. By default, there are two products configured on the ground instance:

- MPE precipitation image
- GFS wind forecast



4.4.12.1 MPE

Multisensor Precipitation Estimate is a product from Eumetsat that shows precipitation areas. The product coverage is shown on figure 11.

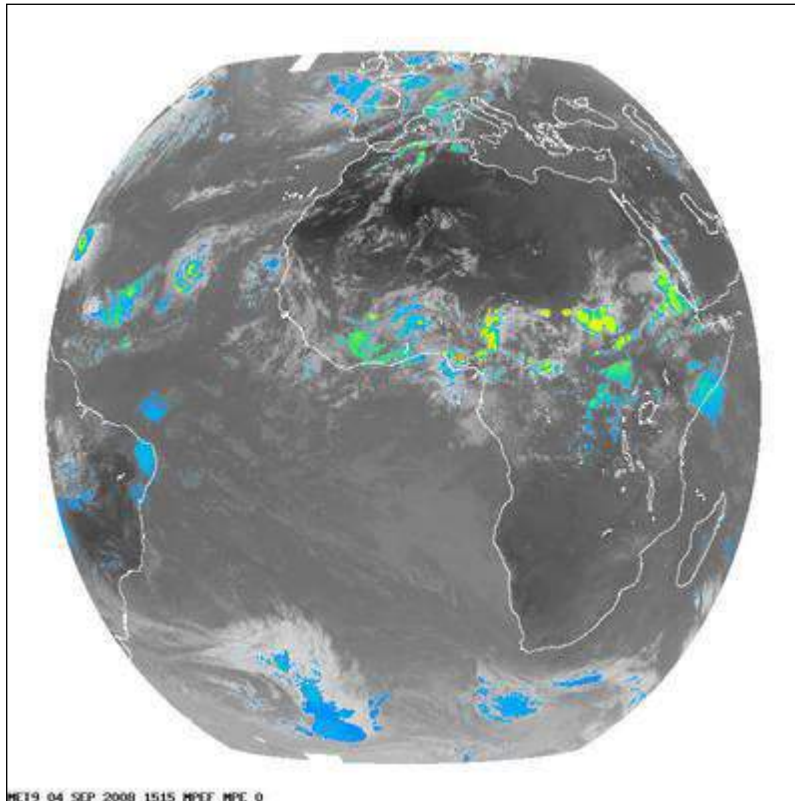


Figure 26 : Eumetsat Coverage

For more information on that product:

http://www.eumetsat.int/website/home/Data/Training/TrainingLibrary/DAT_2077657.html

4.4.12.2 GFS

GFS (Global Forecast System) is a model that allows to compute forecast for winds at several flight levels. The raw data are recovered from NOAA website (http://nomads.ncep.noaa.gov/cgi-bin/filter_gfs_0p25.pl).



Once the layer is selected, the GFS button will be colored in blue

C is the date of the data run (every 6 hours) and D is the forecast selected (every hour, the closest to the current date is served).

The flight level for the wind charts can be selected using the FL slider (section 4.4.16).

Figure 12 shows the display of wind vectors in PLANET.

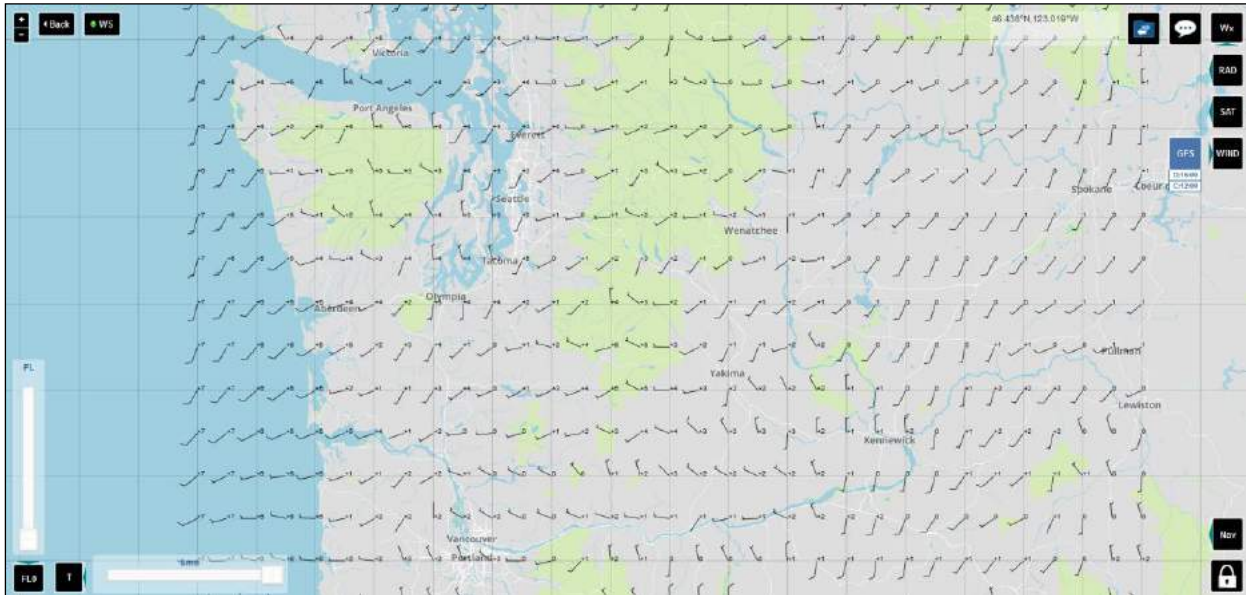


Figure 27 : Wind charts display in PLANET

4.4.12.3 Legend Box

When clicking on a weather product, a legend box can appear on the left side of the application it was configured. This box contains information about the product displayed.

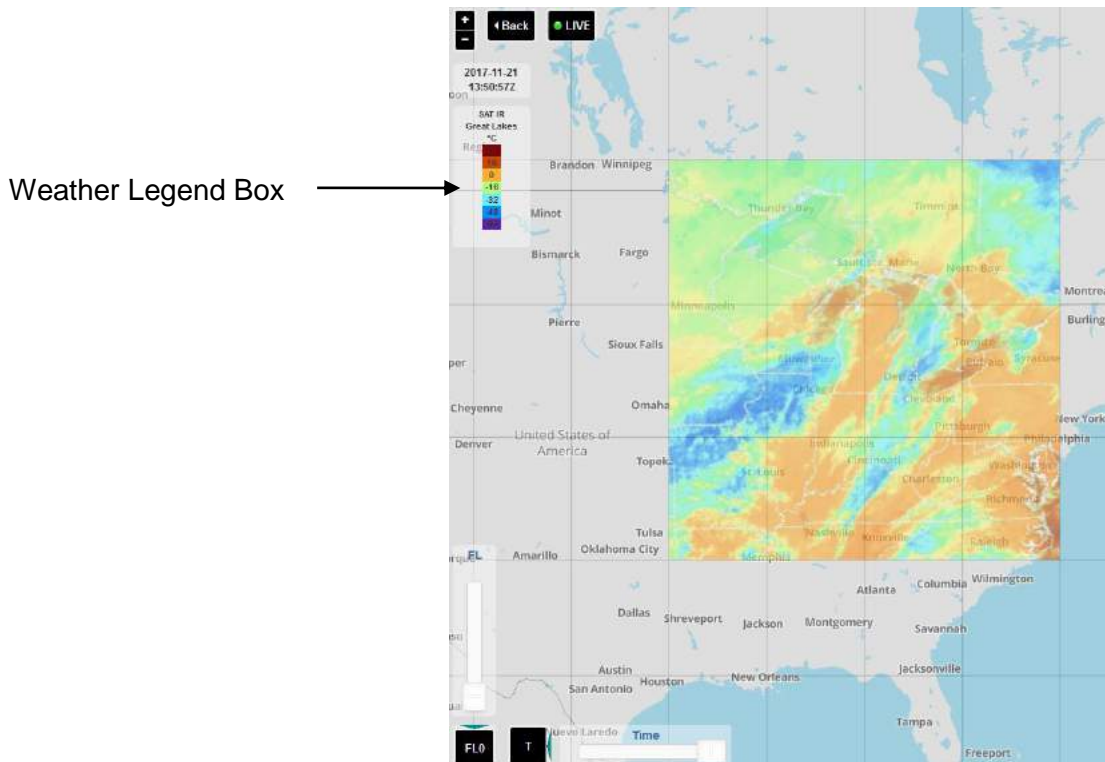






Figure 28 : Weather product legend box

Important Note: if there are several product displayed at a time, the legend box will only concern the last product selected.

4.4.13 Navigation Layers

This button extends the Navigation menu. The following features are available through the Navigation menu.

Button	Feature
	Estimated time to point (4.4.13.1)
	Airports Layer (4.4.13.2)
	Waypoints Layer (4.4.13.3)
	PIREPs (4.4.13.4)

4.4.13.1 Estimated time to point


This button allows to estimate the duration towards a selected point on the map.



Once selected, chose a target point on the map. The “Estimated to Point” side panel will popup as shown on Figure 29.



Figure 29: Estimated to Point side panel

4.4.13.2 Airports Layer

 allows to display the Airports layer. Airports appear on the map depending on their size. Main airports are displayed at higher zoom levels than medium or small airports.

Airports that provides METAR information are represented by  while others are displayed with  icon (Figure 30).

4.4.13.3 Waypoints Layer



allows to display Nav aids and Waypoints on the map (those items are only displayed from a certain zoom level).

The following nav aids/waypoints type are available on the map (Figure 34):

△ : Waypoint

⬡ : VOR

⬡ : VOR-DME

⊙ : NDB

⬡ : DME



Figure 34: Nav aids and Waypoints

4.4.13.4 PIREPs



allows to open the Pirep side application as well as display/hide the Pirep layer on the map.

Pireps are symbols used to signal a special event that occurs during the flight. Visibility, Icing and Turbulence are available (**Figure 35**).

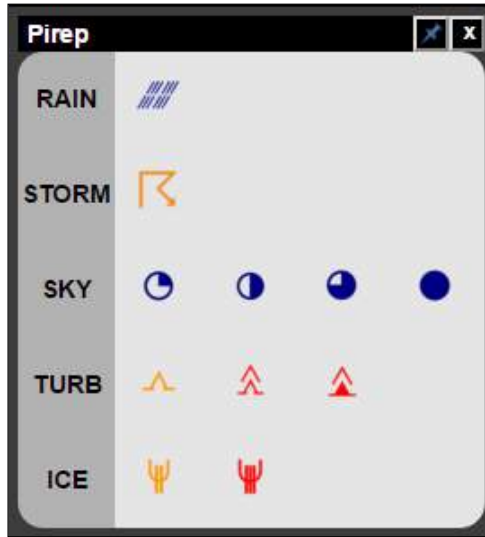


Figure 35: Available Pireps

The selection table shown on **Figure 35** is only available for onboard users. (Ground users cannot send Pireps but just display the one received from aircraft).

Once clicked on one of the Pirep icon, it will be dropped under the aircraft current position and also sent to the ground. (**Figure 36**)



Figure 36: Pireps on the map

4.4.14 Lock Screen button

This button disable all possible interaction with the application, to prevent unwanted interactions especially onboard.

4.4.15 Time Slider

The time slider allows to switch the time of a weather data. The slider is only available for data with several time instances.

4.4.16 Flight Level Slider

The flight level slider allows to switch from flight level. This slider is used for wintem charts only.

4.4.17 Aircraft Position Lock

The Aircraft Position Lock allows to center the map on the active aircraft position. If the map is moved by a user action, the lock will be automatically removed.

4.4.18 Error messages

If your connection to the local server (either the ground server or the aircraft server) is lost, a message will popup in a red box. The connection to the local server is retried automatically, however if the message persist, please check your network connectivity.

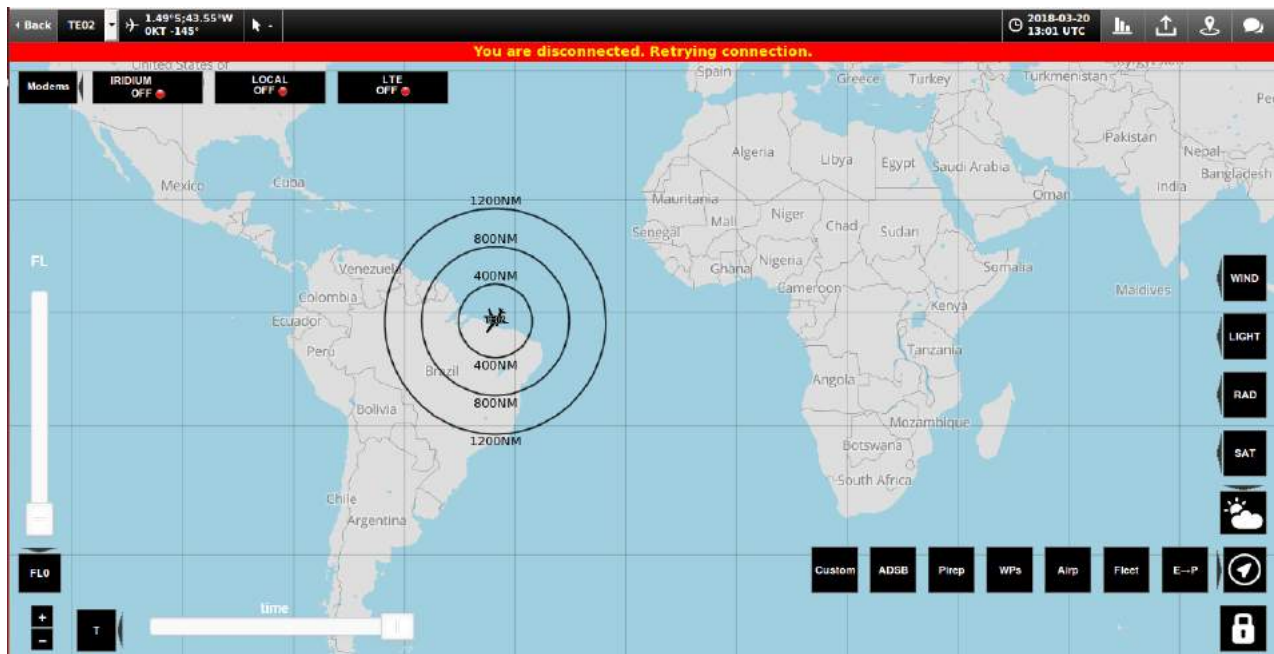


Figure 37: Websocket connection error message

4.5 Historical Data

The historical data page is accessible to all users. It is used to download historical information within a user defined time window.

The Historical data page is depicted in Figure 38.

Figure 38 : Historical Data page

From the Historical Data page, users can download historical data for a set of parameters.

To do so, users must:

- Select the concerned terminal by ID
- Select the parameter to be retrieved. The classic parameters are:
 - Tracking (positions of the aircraft)
 - Messages (all messages transiting through the chat interface)
 - Geomarkers (including PIREPs)
 - Mission specific historical data, such as instrument data
- Select the start and end date and time (format: MM/DD/YYYY hh:mm)
- Select the output format (e.g. CSV)
- Click the download button to retrieve the data in CSV or KML format.

4.6 Statistics

The statistic page is accessible to all users. It is used to collect information on the traffic and the status of cellular and satellite media usage.

The Statistics page is depicted in Figure 39.

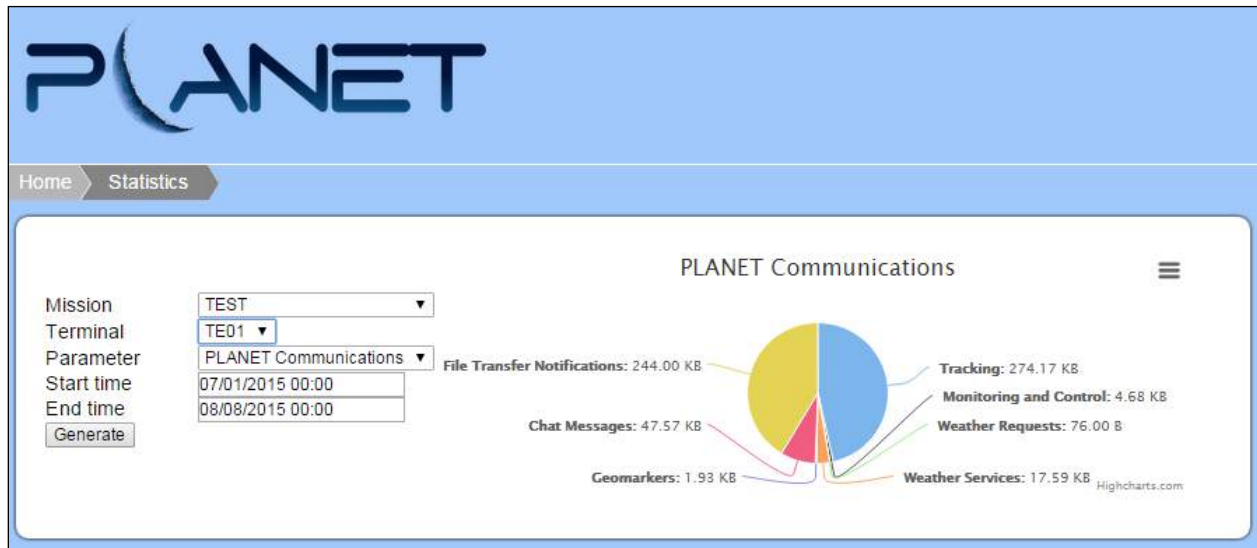


Figure 39 : PLANET portal - Statistics page

From the Statistics page, users can get information on the data consumption over a selected period of time.

The user must first select a terminal using the Terminal ID combo box.

Then the user selects a time window on which the statistics are to be consulted.

Upon click on the Update button, the data consumption is displayed in numerical form and in the form of a pie chart.

The values that can be monitored on the Statistics page are the following:

- PLANET: The data exchanged within the planet system (chat, markers, track, ...)
- File transfers: The amount of data exchanged with file transfers through the system
- Mission specific data: Upon specific request of the user, certain data exchange, such as instrument log exchange in the frame of a specific mission, can also be monitored and compared to other data exchanges.

4.7 Documentation

The Documentation page is accessible to all users. It is where users can consult documentation documents, and watch the PLANET presentation video.

The documentation page is depicted in Figure 40.



Figure 40 : PLANET portal - Documentation page

From the documentation page, users can watch the YouTube video presenting the overall PLANET application features and how to use the PLANET WUI.

This User Manual is also available to download in PDF format.

4.8 User Admin

The User Admin page is accessible by ground users that have admin privileges. The User Admin page is depicted in Figure 41.

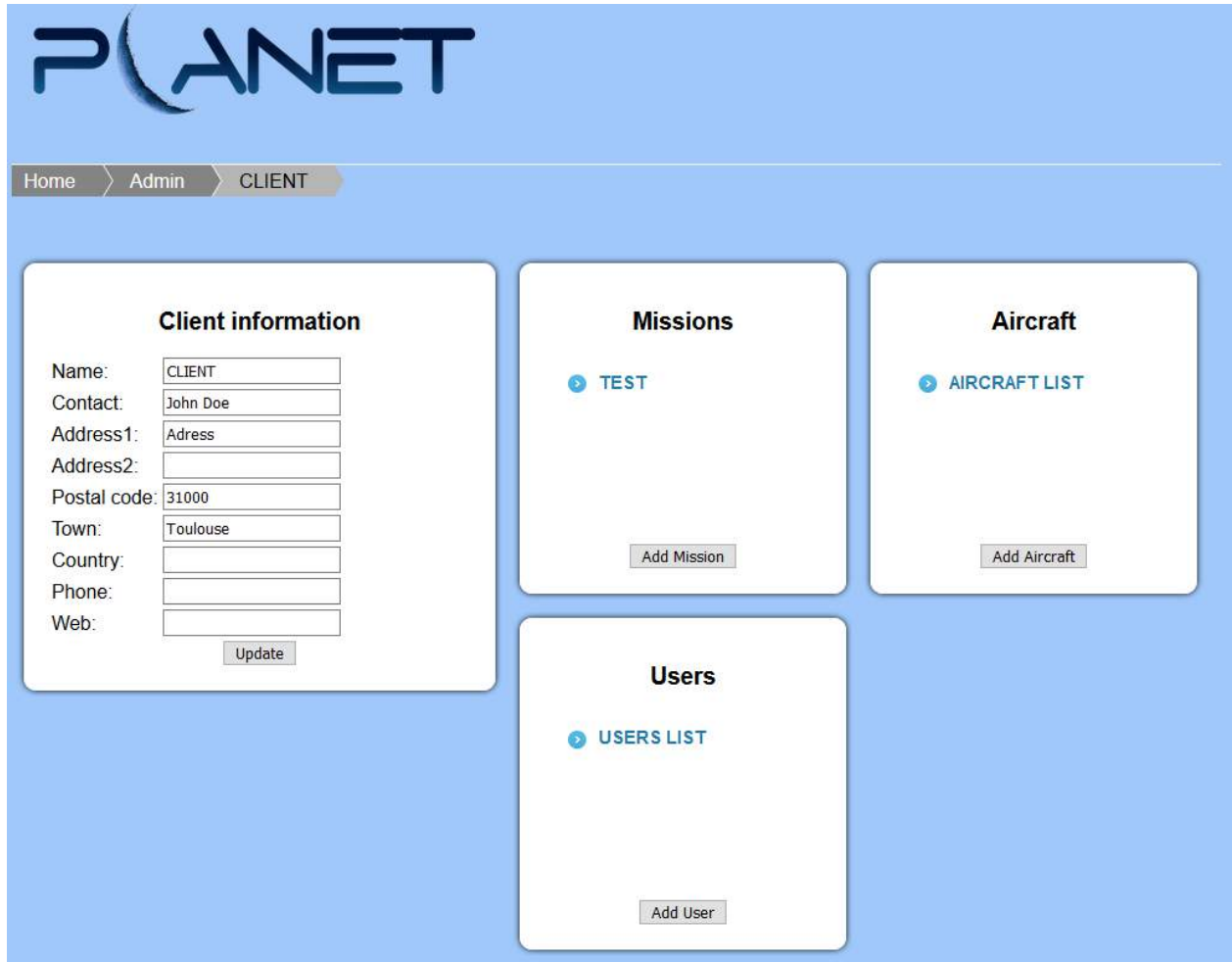


Figure 41 : PLANET portal – User Admin page

4.8.1 Client Information

Client information can be updated via the « Client information » menu.

4.8.2 Users

➤ **USERS LIST** allows to access the client users list.

Search: in: Username

Username	First name	Last name	Email address	Role
Client-admin				admin
passive_user				passive
active_user				active
inactive_user				passive

Figure 42 : User Admin – Users list

Note: inactive users are greyed out and crossed out.

Add User

allows to add a new user.

Username:
Required. 150 characters or fewer. Letters, digits and @/./+/-/_ only.

Password:

Password confirmation:
Enter the same password as before, for verification.

Figure 43 : User Admin – Add new user

User settings can be modified after its creation by selecting it in the user list. Different metadata can be set such as:

- First Name
- Last Name
- Email address
- Accessible missions
- Role between admin, active and passive
- User active

The screenshot shows a user modification interface. At the top, the 'Username' field contains 'Client-admin' with a note: 'Required. 150 characters or fewer. Letters, digits and @/./+/-/_ only.' Below are empty input fields for 'First name' and 'Last name', and an 'Email address' field. The 'Active' checkbox is checked, with a note: 'Designates whether this user should be treated as active. Unselect this instead of deleting accounts.' The 'Mission' section features two side-by-side lists: 'Available missions' with a search filter and a 'Choose all' button, and 'Chosen missions' containing 'TEST' and a 'Remove all' button. At the bottom, the 'Role' dropdown is set to 'admin', and the 'Password' field has a 'Change user password' link. A 'Save' button is located at the bottom center.

Figure 44:User Admin - User Modification

Note: The password of the user can also be reset by the admin if necessary.

Note: Each user now have the possibility to modify its own password by clicking on «Change password» button located in the upper right corner of the PLANET portal.

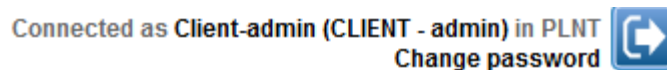


Figure 45 : Change password

4.8.3 Missions

TEST allows to access the mission menu named «TEST».

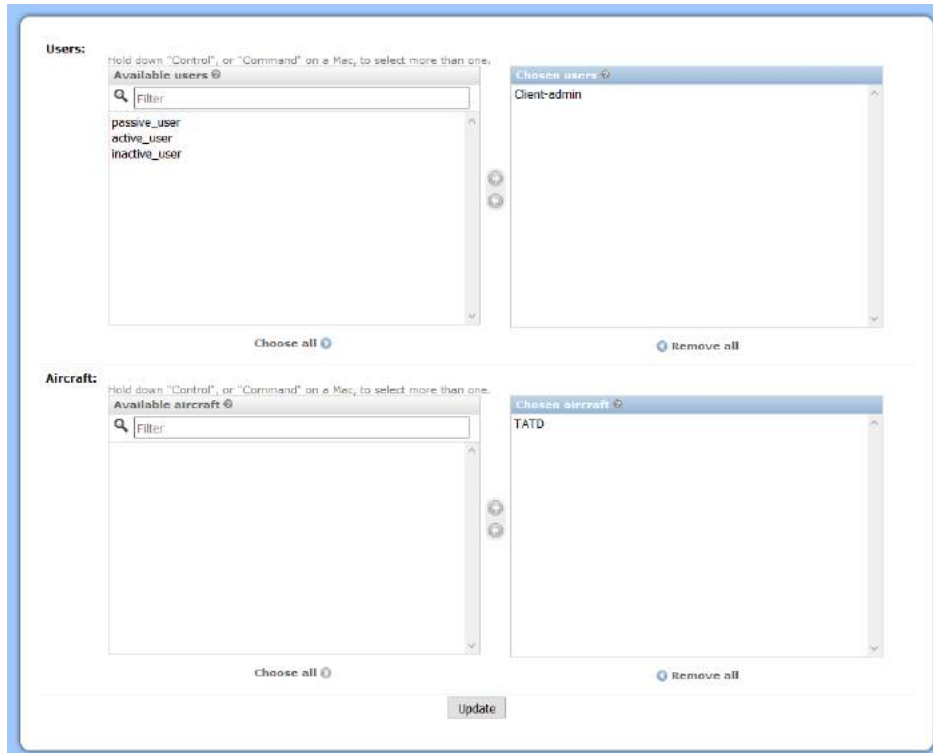


Figure 46 : User Admin – Mission menu

The mission menu allows to add/remove users for a given mission.

The mission menu allows to add/remove aircraft for a given mission.

Add Mission

allows to create a new mission.

Figure 47 : User Admin – Mission creation

4.8.4 Aircraft

Add Aircraft allows to add a new aircraft.

Figure 48: User Admin - Add new aircraft

AIRCRAFT LIST allows to access the client aircraft list.

Ident	Mission
FAFD	TEST
TE01	TEST

Figure 49: User Admin - Aircraft list

Note: inactive aircraft are greyed out and crossed out.

Select an aircraft to modify it. You can change its mission and change its active status.

An inactive aircraft is not displayed in the mission and no new position can be set.

Figure 50: User Admin - Aircraft update

ANNEX 1 - INSTRUMENT DATA ACQUISITION INTERFACE DESCRIPTION

The current technical note aims at describing PLANET data acquisition interface. This document includes three parts:

- Description of the onboard acquisition interface between an external instrument and PLANET server
- Description of the ground interface to retrieve instrument data sent via PLANET
- Description of the transmission tuning capabilities

1. Onboard acquisition interface definition

There is a standardized interface for onboard acquisition in PLANET system. This standardization allows to easily add acquisition from new instruments, just by editing configuration files.

This interface is based on two technical concepts:

- UDP protocol for transport layer
- CSV format for frame definition

To configure a new instrument, a UDP port has to be defined for transmission between the instrument and PLANET acquisition process (BE). Note that a port can be re-used for several instruments.

For the CSV frame definition, here are the main points to comply with:

- String will be prefaced with a label to identify this stream.
- The date-time (time-zone: UTC) field will use [iso-8601](#), any of the following [iso-8601](#) forms are acceptable:
 - `yyyy-mm-ddThh:mm:ss`
 - `yyyy-mm-dd hh:mm:ss`
 - `yyyymmddThhmmss`
- Values will be comma separated. This will allow for little loss of bandwidth for missing values.
- Data values other than date will be in any format acceptable to the ANSI C string-to-double function `strtod(3)`
- Decision on the number of appropriate significant figures is left to the transmitting process.
- Fields not supplied or available will be left empty (e.g. '...,4.523,,48.234,...').
- String will be terminated by `\r\n` (carriage return, newline).

String example:

```
LABEL,yyyy-mm-ddThh:mm:ss,value,value,value,,value\r\n
```

2. Display in PLANET application

All the parameters of a CSV frame can be unitary displayed in PLANET application in two different ways:

- the last numerical value in the side panel of PLANET application
- a chart with the last 10 minutes of values in the telemetry full screen application

Additionally, on the chart display, several parameters can be plotted on the same chart to ease values comparison.

3. Ground interface for third party applications

In some missions, namely the ones where embedded instrument information is collected and downlinked by the on board PLANET system, it is possible to have access to the instrument data directly through an URL.

This can be used in order to monitor the data sent by a specific instrument in a simple display or to programmatically collect the data over time.

For an instrument named INST_NAME, in a mission called MISSION_NAME, the URL used to check/collect the data is the following:

http://planet.atmosphere.aero/logs/MISSION_NAME /INST_NAME.txt

The page always provides the last 10 minutes of data for the given instrument. It is updated every 5 seconds in a browser.

Additionally it is possible, for users who wish to programmatically collect data of an instrument, to define a time delta in the URL in order to recover a custom sized window of data. To do so, users must add a key/value pair to the request: delta=windowSizeInSeconds

For example, to collect the last hour of data for the AIRLIF instrument (that is all the data between the moment of the request and one hour ago), users can extend their request in the following manner:

<http://planet.atmosphere.aero/logs/HALO/AIRLIF.txt?delta=3600>

Note: the same interface is also available onboard by replacing, in the URL, PLANET ground server IP address (planet.atmosphere.aero) with the IP address of PLANET server in the aircraft LAN.

4. Data transmission to ground

PLANET system can be configured to only send a sub-sampling of the data received from an on-board instrument to the ground (e.g. one CSV frame out of ten received onboard).

ANNEX 2 - GEOMARKER FILE FORMAT DESCRIPTION

1. Format Definition:

The new file format relies on CSV standards, using “,” as separator between fields. Each filed has to

Type	Name	Description	colour	Altitude	radius	Coords 1	Coords 2	...	Coords n
"Point"	"String"	"String"	"String"	"Int"	""	"lon,lat"			
"Circle"	"String"	"String"	"String"	"Int"	"Int" (>0)	"lon,lat"			
"LineString"	"String"	"String"	"String"	"Int"	""	"lon,lat"	"lon,lat"	...	"lon,lat"
"Polygon"	"String"	"String"	"String"	"Int"	""	"lon,lat"	"lon,lat"	...	"lon,lat"

Coordinates format :	Colour :
Decimal format "lon,lat" <ul style="list-style-type: none"> • Lon : [-180.0,180.0] • Lat : [-90.0,90.0] Examples : 120.15,-26.157	Available colours: <ul style="list-style-type: none"> • "red" • "blue" • "green" • "white" • "black" • "yellow"
Deg, min, sec format "lon, lat" <ul style="list-style-type: none"> • Lon : -180.0d0.0'0.0, 180.0d0.0'0.0 • Lat : -90.0d0.0'0.0, 90.0d0.0'0.0 Examples : 24d34'43, -5d21'35 24d34', -5d21'35 24d34'43, -5d21'	Name : String, XX char max Radius : For circle only. This field can be used to create a circle, centered in coords1. Altitude: Int in meters msl (0 if None or negative)

2. Examples:

Point:

- "Point","Pt1","This is the description of point 1","red","100","","48d22.8",-4d31.2"
- "Point","Pt2","This is the description of point 2","green","","",-100.35,42.0576"

Circles:

- "Circle","Circle1","This is the description of circle 1","red","100","56","-12d02'12,20d31.2"
- Circle,Circle2,This is the description of circle 2,yellow,,457,150.35,-58.0576

Line:

- "LineString","line 1",,"blue",,"555",," 43, 45.47", " 42.1, 44.97", " 41.5, 40.85", " 48.01, 54", " 48, 60.2"
- "LineString","line 2",,"white",,"1000",," 157d01'25,54d47.21", " 152.7d,57d01'25"

Polygon:

- "Polygon","poly 1",,"This is a polygon",,"red",,"", " 43, 45.47", " 42.1, 44.97", " 41.5, 40.85", " 48.01, 54", " 48, 60.2"
- "Polygon","poly 2",,"black",,"1000",," 157d01'25,54d47.21", " 152.7d,57d01'25"